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The FOREST MANAGEMENT Newsletter

Volume 1 • Issue 6 • Winter/Spring 2001

Communicating Issues and Ideas Important to the Management of Montana's State Forest Lands

FOREST MANAGEMENT YEAR IN REVIEW

Tom Schultz

Fiscal year 2001 has been one of the busiest, most productive, and contentious years that the Forest Management Bureau (FMB) has encountered in some time. With the beginning of the fiscal year in July came the 2000 fire season. Many Trust Land Management Division personnel temporarily put on hold their normal duties to support the Forestry Division with wildfire suppression and community protection. As of mid-September, almost 1 million acres of land had burned in Montana, with more than a third of that occurring in the Bitterroot Valley. Despite this, trust land management objectives were not relaxed to account for the support that was provided to the fire effort. While I appreciate the additional work and strain that this placed on the field, I am proud to report that the field is on target to exceed the objectives set by the FMB last year. This is a phenomenal task and worthy of recognition. Perhaps the most impressive accomplishment this year (and maybe to date) has been the rehabilitation of the Sula State Forest, including the preparation and sale of 22 million board feet (mmbf) of fire-killed timber on the Hamilton Unit. (The department has been recognized by state and nationally-elected representatives for this outstanding effort.) With leadership provided by Tony Liane, and an impressive support staff headed by Steve Kamps, the Southwestern Land Office prepared 157 percent of their timber objectives in a 3-month period. We held a Sula Appreciation Night in Missoula in early December 2000 to thank everyone associated with that project, where the Director noted that "we never ran out of pitchers, as is common practice in Helena drinking establishments." Not to be outdone, the Northwestern Land Office is on target to prepare 117 percent of their timber objectives by the end of the fiscal year.

As we moved out of the second quarter of the fiscal year and into the third quarter, old growth issues continued to heat up. We received a final contract report in late November 2000 from a scientific technical team (Dr.s Thomas, Pfister, Fiedler, and Baker) that was asked to review and comment on several proposed old growth amendments to the Biodiversity Guidance. The report was well-received by most interested parties, and the Old Growth Working Group incorporated several of the Tech Team's recommendations into the draft implementation guidance for defining and distributing old growth. While there has been broad general agreement to adopt the Green et al. definition of old growth, there has been much controversy as to how much old growth (10-18.7%) we should defer from management. In February, the Land Board adopted the "Green" definition; however, they declined at that time to identify a target or minimum amount of old growth to defer under the SFLMP. The Board is expected to revisit the old growth issue in May; however, this could be further complicated by the passage of SB 354.

SB 354 (sponsored by Sen. Crismore) is a new law, that would require the trust to be monetarily compensated for any temporary or permanent deferrals of state forestland for natural areas, open space, old growth preservation, and wildlife management areas. The passage of this law will require the department and the Board to revisit the old growth issue and amend the SFLMP. At this point, I am unsure how this may unfold in the politically-charged arena surrounding this issue.

To further complicate old growth matters, on February 21, 2001 Judge Jeffrey Sherlock issued a Summary Judgement in the complaint brought against DNRC by the Friends of the Wild Swan, Alliance for the Wild Rockies, and the Ecology Center regarding our Biodiversity Guidance (Cause No. BDV 2000-369). The Plaintiffs had argued that we had not complied with the Montana Environmental Policy Act (MEPA) and the Montana Administrative Procedures Act (MAPA) in adopting the guidance. Judge Sherlock ruled in favor of the department that MEPA is not required on guidance, in effect, agreeing with the department that the effects anticipated under the implementation of the biodiversity guidance was consistent with the MEPA analysis in the SFLMP. However, he ruled that the biodiversity guidance constitutes "procedural rules", therefore invoking MAPA and requiring rulemaking. In making his ruling that MAPA is required, he has "enjoined the Department from harvesting old growth timber until such time as the Department can comply with the procedural requirements of MAPA." At this point, the field has identified current "active" sales

that contain old growth stands to ensure that old growth units are not harvested.

In order to comply with the judge's order and eventually lift the injunction, we have formed a well-trained rule-drafting committee to begin to translate the existing Biodiversity Guidance (1998), and appropriate SFLMP vegetation standards into draft rules. The draft "rules" would be brought to the Land Board at the May meeting for preliminary approval, prior to engaging in a formal "rule-making" process as directed by Judge Sherlock. The department is proposing that the Board adopt temporary rules at the June meeting to implement SB 354, while simultaneously addressing the associated biodiversity and old growth issues from the recent lawsuit and injunction outlined above.

FY 2000 has been extremely busy, productive, and contentious, and I anticipate that our jobs will continue to demand our best professionalism. In order to maintain a successful program, we must continue to support each other, treat our customers (beneficiaries, purchasers, and public) with respect, anticipate and respond to new issues with foresight, and accomplish our mission with a unified vision and integrity.

FISCAL YEAR 2001 TIMBER SALE/PERMIT STATUS

Bill Schultz

Sale Status

Approximately 90% of the volume from the fire salvage sales in the Sula Sate Forest was harvested this winter, with operations shutting down on February 28. As you probably recall, we sold 21.9 mmbf on 11/30/00 for an average price of $26/ton ($169/mbf). The stumpage receipts totaled about $3.5 million. Great job! Thanks to everyone who helped make it happen.

Fiscal Year 2001 timber sale/permit status
(as of April 16, 2001)

Volume Sold To Date:	42 mmbf
Volume Harvested To Date:	32.144 mmbf
Revenue (Stumpage & FI) Collected to Date:	$7,304,988
Average Price For Volume Sold this FY:	$199.52/mbf
Volume Presently Advertised For Sale:	6.037 mmbf
Volume Taken to the Land Board this Fiscal Year:	40.06 mmbf
Volume Remaining to be Approved by the Land Board this Fiscal Year:	1.7 mmbf

Remaining Volume to Sell in FY2001

*Bald Hill	327 mbf
*Fishtrap	991 mbf
*Cyclone Ridge Fire Salvage	818 mbf
*Good Long Boyle	4,589 mbf
*East Grass Range	303 mbf
Ryan Gulch Salvage	500 mbf
Spring Hill Salvage	800 mbf
Sleeping Child Salvage	400 mbf
Total	8,728 mbf

*Already approved by the Board

We have two sales that still need buyers. These are the Bald Hill Fire Salvage on Kalispell Unit (2226 tons) and the Sand Creek Sale (1881 tons) on ELO. Let's hope the market improves a little! Bald Hill will be re-bid in May 2001.

2:1 Update

We project about 38.7 mmbf (FY97-00 average) to be harvested this FY, at an average price of $217/mbf ($172/mbf stumpage + $45/mbf FI), for a total gross revenue of $8,397,000. Additionally, we project approximately $5,300,000 in costs, for a revenue/cost ratio of approximately 1.58. As noted above, to date we have harvested 32.1 mmbf for a total revenue of $7.3 million. This is below our 2:1 goal and is due largely to lower stumpage rates, lower volumes harvested (57.4 mmbf harvested in FY00), and increased costs in personal services and operations due to the Sula Salvage Project. Currently we have 63.76 mmbf under contract.

SPRING TRAINING 2001 — JUNE 4-6, 2001 — MISSOULA

This year's Spring Training focuses on the effects of last year's fires, and highlights the Sula State Forest. Tuesday will feature guest speakers on tree mortality, forest nutrition, insect infestations, and impacts to wildlife after fire, as well as an overview of the 2000 Bitterroot Fires. Presentations on salvage harvest, restoration and monitoring efforts at Sula will be given on Tuesday afternoon, and a field trip to the Sula sale areas will be on Wednesday. (See the accompanying articles in this newsletter.)

FMB section updates on T & E Species, Stand Level Inventory/GIS, Watershed Monitoring, Old Growth and Access issues will be given on Monday afternoon. We are shortening the training by a day and will not be meeting on Thursday.

Bonner Park will be the site of our barbeque social and softball game on Monday evening, and Techno Night will be on Tuesday evening at the conference center.

The training session will take place from June 4-6, and will be held at the Best Inn—South (formerly 4Bs) Conference Center, at 3803 Brooks Street in Missoula (near the corner of Brooks and Reserve). Room reservations are being held under "DNRC Spring Training" at two locations:

Best Inn—South	Valu-Inn
3803 Brooks Street	3001 Brooks Street
(406) 251-2665	(406) 721-9600
(800) 272-9500	(800) 443-7777

Missoula is now a high cost city during the summer months, and these hotels are holding blocks of rooms at the state rate. When making reservations, be sure to use the "DNRC Spring Training" GROUP NAME to get the state rate. Guarantee rooms under your individual credit card. Rooms will be held for DNRC until May 20, 2001. After this date, you may have to stay elsewhere and other locations may not meet the state rate.

Please call Kathy O'Connor (542-4302) if you have any questions regarding accommodations, and call Brian Long (542-4323) if you have questions pertaining to the agenda.

See you all in June!

BLACK TREES, SMZS AND DIRT
Mitigating the Effects of the Sula Wildfires

Last summer, approximately 87% (12,021 acres) of the Sula State Forest burned during one of the largest wildfire seasons in recent history. Following these wildfires came an increased need for DNRC staff to assist with rehabilitation efforts, which in turn re-prioritized our scheduled monitoring tasks. In the aftermath of the wildfires, efforts to harvest salvage trees on the Sula State Forest were given our highest priority. Given the large area consumed by these wildfires, DNRC personnel had to improvise and develop mitigation that would both minimize the anticipated impacts and maximize the potential for harvesting dead or dying trees. The following series of articles describes the implementation and effectiveness of management actions at Sula.

(Sula South salvage sale area after logging.)

SULA FIRE REHABILITATION AND MITIGATION

Jeff Collins

Across the state last fall, many fire-related projects took a fast pace. The FMB soil, water and rehabilitation specialists were involved with DNRC Field Offices on several fires as part of rehabilitation efforts and timber harvest operations. Our first efforts were to map burn severity, followed by assessment of resource damage, and design and implementation of soil stabilization, water quality protection, and timber harvest treatments. Rehabilitation efforts on the Sula State Forest began almost immediately, and occurred on two levels—measures to mitigate resource damage from the fire suppression actions, and measures to mitigate resource impacts from the wildfires at the watershed scale.

Rehabilitate Resource Damage from Fire Suppression Actions

Rehabilitation of fire suppression damage on firelines and roads was started before the fires were fully controlled. The assessment and costs for this work were covered by the respective fires, such as the Bitterroot National Forest in the Sula area, and DNRC on State fires.

These rehabilitation tasks included:

* Installing erosion control on dozer and hand constructed fire lines with water bars and seeding. In many cases track excavators were used for dozer lines on steeper slopes to reshape disturbed areas and available slash on the surface.
* Grass seed was applied by hand, with 4-wheelers and helicopters, depending on the site and area to be seeded. Weed free hay mulch was used.
* Roads damaged by suppression traffic have been graded and drainage added.

Rehabilitate Resource Damage Caused by the Wildfires

DNRC participated in the BAER (Burned Area Emergency Recovery) Interagency Burned Area Survey with the U.S. Forest Service and National Resource Conservation Service. This effort identified watershed emergency situations and developed treatment plans to stabilize soils and avoid flood damage across all ownerships. The Department mapped the burn severity and completed field reviews of State lands, to determine potential watershed problem areas and develop mitigation measures. The BAER team determined that a burned area emergency, which could threaten life and property, occurred in certain areas of the fire. This finding was used to support the funding requests from the NRCS.

The DNRC hydrologist and soil scientist concentrated our efforts on State lands to identify sites in severe burn areas with steep slopes, erosive soils and potential to affect homes, property, water quality, fisheries and natural resources. Several homesites near Sula and a dam at Schoolmarm Lake occur below state lands that were considered at risk of severe runoff and erosion. Increased runoff and erosion in severe burned areas was expected to threaten some existing roads and culverts.

Funding

As with other large fires in the past, (Canyon Creek 1988, Beartooth Complex), the Department applied for a cost share grant from the Natural Resources and Conservation Service (25% DNRC / 75% NRCS), and Bitterroot Conservation District for Emergency Watershed Protection (EWP) funds. EWP projects are not designed to mitigate timber harvest activities, but to control erosion associated with the wildfire. We estimated total costs could be up to $254,000. To date DNRC has recouped about $94,000 dollars for EWP projects, and we expect the total program costs will be less than $150,000. Additional repairs to roads were made to meet BMPs prior to timber salvage.

Fire Rehabilitation Treatments Completed

The following activities have been completed or are planned for completion in the near future.

* Log erosion barriers/directional tree felling installed on 140 acres of 240 acres initially planned for high erosion areas near streams.
* Aerial seeding of 1120 acres of erodible slopes on severe intensity burn sites.
* Broadcast seeding of about 30 acres and straw mulching with volunteers from BIRT
* Replacement of 8 culverts damaged or determined to be undersized due to fire effects. Four of the eight culverts were on large fish bearing streams and should improve fish passage.
* Erosion control measures (drain-dips, waterbars) installed on approximately 75 miles of road and skid trails.
* Streambank stabilization on three sites of severe erosion (removal of road fill in creek and old bridge logs) to stabilize soils and aid fisheries.

Fire Rehabilitation Treatments to Complete

* Install road drainage where needed based on spring inventory of road systems and complete ongoing drainage work (road rubber flapper diverters ,12 or more).
* Road Obliteration is planned on 4.4 miles of road and abandonment is planned for 4.3 miles of road . These operations include closure, ripping and seeding to stabilize

unneeded roads with erosion problems. Portions of these roads are in use and will be closed as soon as feasible.
* Grass seed roadsides within the severe burn on about 50 miles of road to establish grass cover, control erosion and reduce noxious weeds. Hamilton Unit is continuing this large project. Timely grass seeding this spring should help stabilize soils from summer storms and provide competition against noxious weeds.
* Integrated weed management, including herbicide treatment of roadsides and infestations on up to 250 acres, to control post-fire spread of noxious weeds. Procurement and release of biocontrol insects for knapweed on selected sites.
* Hydromulch on selected road cuts (approx. 6 acres), shrub planting on about 1/2 acre, straw mulch and other site-specific erosion control treatments, and miscellaneous treatments.

Monitoring

DNRC has monitored the construction and implementation of all completed and on-going EWP projects for compliance with rehab plans and to make modifications as needed. DNRC has also reviewed ongoing harvest activities for implementation and compliance with timber harvest mitigation measures. These measures include daily administration to check suitable ground conditions for ice and snow to avoid ground disturbance, and checking the amount and distribution of slash and coarse woody debris returned for erosion control and nutrient cycling. This was a large effort by sale administrators to ensure resource protection, and the low level of ground impacts is apparent.

During the next field season, DNRC's monitoring efforts will include field transects to compare erosion on non-logged and logged sites within the burn area, to document erosion, ground effects following the fire, and the effectiveness of rehabilitation treatments.

MEASURING THE EFFECTIVENESS OF SMZ BUFFERS

George Mathieus

Some of the major concerns with the proposed salvage harvest were impacts to water quality and fisheries, including increased water yield, sedimentation, temperatures, and nutrients, as well as a decrease in long-term availability of large woody debris. Following an exhaustive literature search, mitigation measures specific to the Sula State Forest were designed to help minimize impacts to these resources. In conjunction with these mitigation measures, two hypotheses were developed and tested for the anticipated impacts of removing dead trees adjacent to the stream channels on stream shade and large woody debris.

A minimum 50-foot SMZ retention buffer was designated for the fish-bearing streams that had some level of stand replacement fire and were proposed for salvage harvest. The intent of this buffer was to maximize stream shade available from the charred tree boles and to maintain trees with adequate site index for LWD recruitment. It was hypothesized that the buffer would maintain 90% of the existing shade and 90% of the trees falling in the 10% or greater probability class of entering the stream channel. For both tests, a total of ~4200 feet in Lyman Creek, ~3000 feet in N.F. Lyman Creek, ~3000 feet in Cameron Creek and ~ 3600 feet in Hart Creek was surveyed.

Stream Shade Retention

To test for the stream shade hypothesis, a "solar pathfinder" was utilized to collect shade data in each stream channel. The solar pathfinder is a large convex mirror housed in a transparent plastic dome that sets on a tripod in the center of the stream channel, which when viewed, reflects its surroundings. Inside the dome, a chart that indicates the sun's path by month is divided into grids by hour, by which the viewer can calculate how much of the sun's path is being blocked by canopy, tree boles or terrain.

Shade available to the stream channel consists of tree boles, branches, canopy and terrain. Shade points are given to each hour of the day and are weighted heavier during the hotter periods of the day. Preliminary results indicate the following:

* Approximately 78% of the total shade came from trees inside of the no cut buffer.
* Approximately 13% of the total shade came from trees outside of the buffer that would be harvested.
* Approximately 5% of the total shade came from terrain.
* Approximately 3% of the total shade came from green canopy and would not be harvested.
* Approximately 1% of the total shade came from wildlife snag retention trees.

We have not finished the analysis of this data. Analysis may show that a large proportion of the 13% shade removed through salvage harvesting will fall on the outer fringes of the sun's path, when cooler temperatures are less critical to increased stream temperatures. We also suspect that the

critical shade available during the hotter periods of the day will be retained, thus lowering the overall percentage.

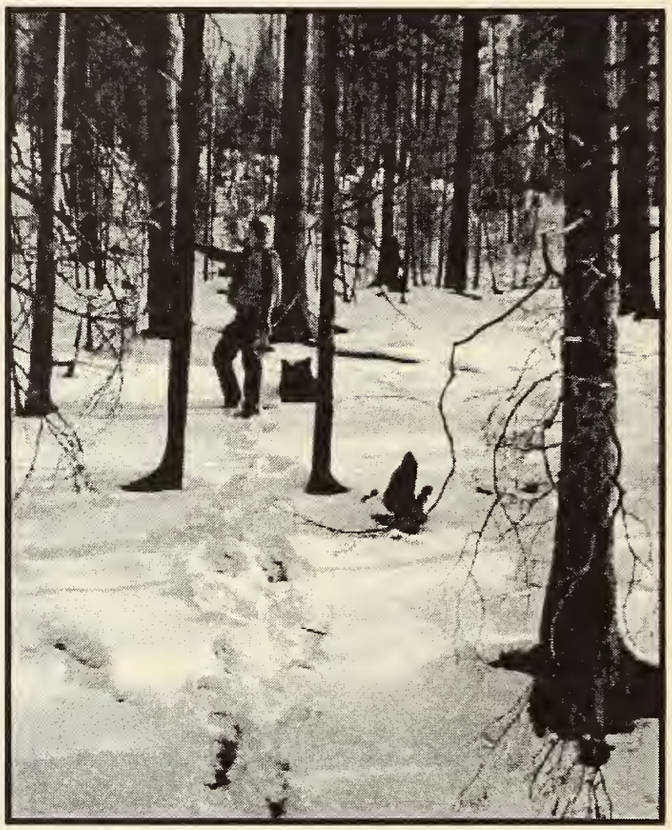
Large Woody Debris Recruitment

To test the large woody debris recruitment hypothesis, stand data was collected on evenly spaced sample sites adjacent to each stream channel. All standing trees that met a diameter requirement at a height probable of entering the adjacent stream channel were tallied. These trees were noted as inside or outside of the no-harvest retention or buffer area. The intent was to measure the total number of trees which were likely to enter the stream and, of these trees, the percentage that would be harvested.

A total of 134 trees were tallied that had some level of probability of entering each stream channel. Of those 134 trees, 7 were outside of the designated no-cut buffer. Five of the seven were cut trees, 1 was a wildlife snag retention tree and one was green and would not be harvested. Preliminary results indicate that most or all of these cut trees have a low probability of reaching the channel, due their distance from the stream. Therefore, it appears that the No-cut harvest buffers were effective in retaining 90% + of the trees with 10% or greater probability of entering the stream.

Water Quality Monitoring

In addition to monitoring the effects of our salvage harvest on stream channels within the Sula State Forest, a water quality monitoring contract was awarded to Land & Water Consulting to collect data on Lyman Creek, Cameron Creek and Praine Creek. Standard sampling methods are being used to collect stream temperature, stream discharge, stream stage, Total Suspended Solids (TSS) and nutrients to include total phosphorus, soluble reactive phosphorus and nitrate.



(Taking measurements for woody debris recruitment in Lyman Creek.)

The objective of this monitoring is to gather baseline water quality data in the Sula State Forest to help document effects of the wildfires. Pre-fire data for in-stream sediment levels, nutrients and stream temperatures from adjacent basins will be used in conjunction with the data we are collecting to help extrapolate effects from the wildfires.

TREE MORTALITY MONITORING

Brian Long

The wildfires in the Bitterroot had barely cooled as DNRC land managers begin making plans for salvaging and restoring the forestland in the Sula State Forest. There was considerable debate among foresters and specialists about which trees were going to die and which trees were going to survive as a result of the fire damage. DNRC and USFS experts were asked to provide advice, and research publications were scoured for additional information. The best available information was used in the analysis for the Sula State Forest Fire Mitigation, Salvage and Recovery EA. Due to the uncertainty and public comments, no tree that had any green needles remaining was scheduled to be salvage logged in the Phase One sales. Mortality monitoring sites and photo points were established to further address these questions and contribute to our knowledge of post-fire tree survival.

Mortality monitoring assesses mortality rates by amount of crown scorch, size (dbh) and species in the Sula State Forest. The results of the monitoring will also provide information that might be useful for predicting mortality rates for future fires of similar severity on similar sites.

Photo points were established to supplement the mortality plot data. The pictures taken at these photo points will be used to educate land managers and the public about post-fire recovery and the effects of forest management activities like planting and thinning. Hopefully they will remain part of the historical record documenting Sula State Forest's devastation and recovery from one of Montana's largest fires in recorded history.

Mortality Monitoring

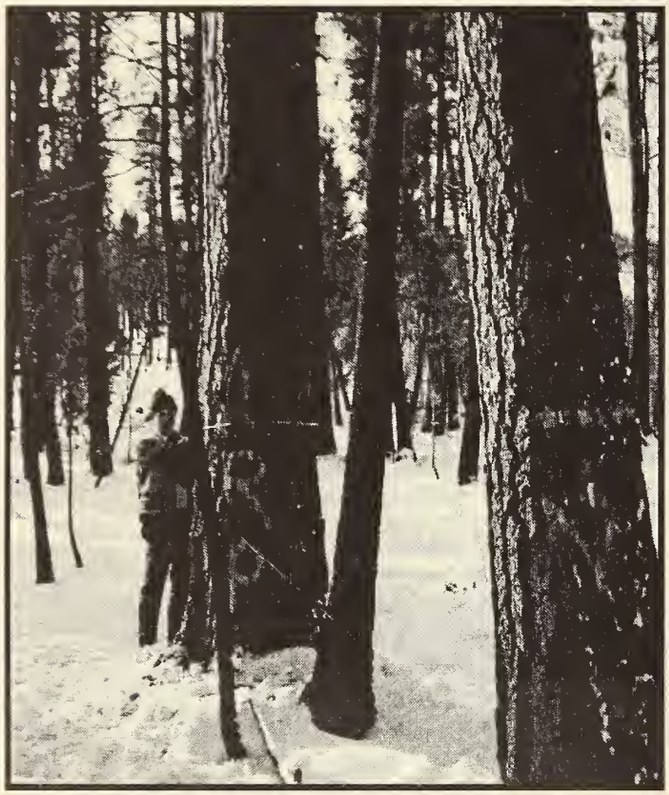
We established eleven mortality monitoring sites in the Sula State Forest. Nine sites surround the French Basin part of the forest, and two more sites are located in the Sula South portion. The sites are located on both severe and medium/ low fire severity areas. All sites are located next to roads for ease of access.

The location of each mortality monitoring site is recorded by determining the latitude and longitude of a reference point (RP) tree with a GPS receiver. The location of all other monitoring trees is documented by recording the tree's azimuth and distance from the RP tree. Each tree has a yellow M painted on the bole at about 5 feet above the ground. The RP tree also has a yellow RP painted on it. Each tree is tagged with an aluminum tag with a unique number scratched on it. We plan to visit each mortality site next September or October to determine which trees are dead. The year the tree died will be recorded and entered into the database. Annual monitoring site visits will continue for 5 or 6 years or until all trees have died, whichever occurs first.

A total of 131 Douglas-fir and ponderosa pine trees have been painted and tagged. The selected trees have a wide range of crown scorch, bole scorch and diameters at breast height (see table below). We are collecting the following information for each tree: site number, tree number, species, diameter at breast height, distance from RP, azimuth from RP, crown kill, crown scorch, crown ratio, uphill bole scorch, downhill bole scorch and comments.

Number of Mortality Monitoring Trees by DBH and % Crown Scorch Class

DBH	Percent Crown Scorch Class (# of Trees)					
	<45%	45-64%	65-84%	85-99%	100%	TOTAL
10	2	2	1			5
11	2	1	1	1		5
12		1	2	3		6
13	1	1	2	2	1	7
14			1	7		8
15		2	6	2		10
16	2	2	2	5	1	12
17	5		1	6	3	15
18		2	3		2	7
19	2	3		5	2	12
20		3	2	2	1	8
21	1		4	3		8
22		1		2		3
23				2	1	3
24	2		2	2		6
25	2	1	1			4
26	1					1
27			1			1
28		1	2			3
29				1		1
30				1		1
31	1					1
32				1	1	2
33				1		1
35			1			1
TOTAL	21	20	32	46	12	131



(Measuring a mortality monitoring tree.)

Photo Points

We established 26 permanent photo points, scattered throughout the Sula State Forest. Some of the photo points are also mortality monitoring sites. Photo points are located on high and medium/low burn severity sites, distributed between areas to be logged last winter and areas not scheduled to be logged last winter. Each photo point's latitude and longitude coordinates were determined using a GPS receiver.

To date, we have taken 120 photos, from which prints, slides and digital copies have been made. Photos were taken looking in four to six different directions from the photo point. The azimuth of the direction each picture was taken from the photo point was recorded.

We plan to visit the photo points several times over the next fifteen years to track the forest's recovery progress. Photo points will probably be visited annually for a few years while logging activity and regeneration is occurring. We also intend to visit the photo points about every ten years for several decades into the future.

SNAG AND COARSE WOODY DEBRIS MONITORING

Ross Baty

As a part of the Sula Salvage Project, DNRC committed to monitor snag and coarse woody debris abundance both pre and post harvest. The objectives of this monitoring effort were to estimate marked snags in harvest units, and establish baseline coarse woody debris levels for evaluating accumulation and post-harvest retention, within harvest units burned at stand-replacement intensity. A second phase with similar objectives is planned for fall 2001 in mixed severity harvest units. All plots will be re-sampled post harvest to estimate remaining abundance of snags and coarse woody debris.

Project Guidelines

For this project, it was recommended that one snag and one snag recruit per acre, both >21 inches DBH, be retained post harvest. If large snags >21 inches were not available, the next largest snags present were retained. Recruitment trees in the area sampled were typically dead snags retained in place of live trees that were generally not present following the fire. Considerations that played a role in developing these recommendations included: meeting minimum snag retention requirements contained in the Biodiversity Guidance; the existing high snag abundance in DNRC no-harvest areas within the project area; expected high levels of non-merchantable snags that would remain in harvest units post treatment; and the apparent high regional abundance of snags now present at the landscape scale on nearby USFS ownership. Specifications for coarse woody debris retention, post harvest, were to retain 5 to 10 tons per acre larger than 3 inches in diameter scattered throughout sale units.

Methods

To estimate pre-harvest abundance of snags, marked snags and coarse woody debris, five semi-permanent 1-acre plots (66 x 660 ft.) were established in marked harvest units in the Sula West Phase One project area. Coarse woody debris pieces >3 inches diameter were tallied along five, 660 foot transects centered within the plots. Marked leave trees near known locations along existing roads were used to reference plots, and each plot was established using a random azimuth. Plots were established away from each road right-of-way to reduce possible bias resulting from roads and land-

ing areas. Data recorded for each pre-harvest plot included: 1) a tally of all snags 3.5 to 7.4 inches DBH, 2) a tally of "live" trees by size class (those exhibiting any green), 3) a tally of all snags marked for retention that were >7.5 inches DBH by size class, 4) a tally of all unmarked snags >7.5 inches by size class, 5) a tally of coarse woody debris pieces by diameter and soft or hard decay status, and 6) a tally of small (<15.4 in. dia.) and large (>15.5 in. dia.) pieces of coarse woody debris. For snags, data were also recorded for species composition, wildlife feeding activity and cavities observed, top condition, and level of decay.

Results

Within the five plots sampled, a total of 723 snags >3.5 inches DBH were counted. Of these, 414 were >7.5 inches DBH. Snags encountered were primarily heavily charred Douglas-fir (~83%). Very little use of observed snags by wildlife was noted (~0.2%), and snags were primarily newly created hard snags with intact tops (~99%). These observations were not surprising because sampling occurred very soon after the burn had cooled down. We expect that wildlife use will increase dramatically this summer when insects and nesting birds are active. Within marked units preharvest, 4.0 snags >7.5 inches DBH were found painted for retention. Of these, 1.8 per acre were >21 inches DBH.

Coarse woody debris within harvest units was sparse preharvest with estimates coming in at a "whopping" 1.8 tons per acre. Virtually all of the downed material was charred, and the average diameter of logs at the point they crossed the transects was 5.6 inches. These estimates will serve as a valuable baseline for comparing post harvest estimates.

Follow-up monitoring of snags and coarse woody debris on these plots is planned for this summer, and similar data will be recorded. Estimates derived from this monitoring effort will help us evaluate how well we complied with our original project recommendations.

FOREST INVENTORY STATUS — MARCH 2001

Brian Long and Donna Leeper

Status of the Stand Level Inventory

New SLI procedures were first implemented in 1996 as part of an effort to improve DNRC's ability to identify and manage old growth stands. The new SLI inventory procedures collect data about treatment history, weeds, coarse woody debris, snags and large live trees. The old SLI procedures did not collect information about these forest attributes. The new SLI procedures also more accurately identify stands with old trees in the overstory.

The current status of the Stand Level Inventory for SWLO and NWLO, as of March 2001, is displayed in the following table. All of the forestland in SWLO and NWLO has been stand inventoried.

Area of DNRC Owned Land by SLI Status (includes nonforested acres)

UNIT	Old SLI Procedures	New SLI, Data in Computer	New SLI, Data not in Computer	TOTAL AREA
SWLO				
ANA		43,591.1		43,591.1
CLW	37,008.6	16,945.2		53,953.8
HAM	29,223.7		200.0	29,423.7
MSO	69,217.9			69,217.9
Subtotal	135,450.2	60,536.3	200.0	196,186.5
NWLO				
KAL	33,346.8	23,069.7		56,416.5
LIB	12,222.9	18,634.9		30,857.8
PLN	62,439.6		2,000.0	64,439.6
STW	70,099.3	26,308.4	23,500.0	119,907.7
SWN	21,247.9	18,642.0		39,889.9
Subtotal	199,356.5	86,655.0	25,500.0	311,511.5
TOTAL	334,806.7	147,191.3	25,700.0	507,698.0

We have collected about 4,600 acres of new SLI data in NELO. All of this inventory data has been entered into computer databases. We visited 12 parcels in CLO to field check the accuracy of the PI inventory and to estimate the amount of old growth. We collected 2,200 acres of new SLI data for 77 stands in CLO. This project is about 40% completed. It will take another 5 weeks to collect the field data and 6 days in the office to finish the CLO project.

Below is the draft plan for collecting SLI data.

Field Season Year	Unit/Acres to be Inventoried
2001	STW/50,000 - KAL/32,000 - CLO/2,500 (done by INV Sec)
2002	STW/15,000 - PLN/51,000 (there about 2,000 acres updated)
2003	HAM/20,000 - CLW/30,000 - LIB/11,000
2004	MSO/64,000
2005	SWN/20,000 - CCK/6,000 (the NFK parcels are being inventoried by the current Stillwater Unit contract)

Status of the Photo-Interpreted Inventory

The contractor completed the photo-interpreted inventory (PII) in January 2001. We are currently editing the databases and will finish approximately by the end of April. All PII data has been entered into databases. Preliminary area estimates, compiled from the unedited databases, are shown in the following table.

Area PI Inventoried by Land Office (unedited data)

LAND OFFICE	INVENTORIED AREA	FOREST LAND AREA
NELO	158,708	59,945
ELO	152,245	50,735
SLO	129,749	58,146
CLO	225,093	102,353
TOTAL	665,795	271,179

Geographic Information Systems (GIS)

All inventoried DNRC parcels are digitized and loaded in the GIS for NWLO and SWLO. We have purchased 13 copies of ArcView. We are in the process of installing one copy of ArcView on a computer at every Unit and Land Office that has digitized SLI stand boundaries, plus a copy at the State Land Management Section, FMB. Copies of ArcView have been installed at Stillwater, Swan, Libby, Clearwater and Anaconda Units, and one copy each at NWLO and SWLO.

In addition to the SLI data (which includes "Green definition" old growth), associated map layers include ownership, contour lines, streams & lakes, roads, sections lines, administrative boundaries, county boundaries and miscellaneous information.

We have built maps for CLO, NELO, and SLO, using public 1:100,000 data that includes roads, water and major landmarks. We added the DNRC ownership level, which has ownership designation for all other owners and has DNRC separate from the general state designation. We are in the process of editing the DNRC ownership parcels for completeness and correctness. We hope to make this data layer available soon.

SFLMP MONITORING REPORT AND IMPLEMENTATION GUIDANCE UPDATE

Kathy O'Connor

The inaugural SFLMP Monitoring Report was presented to the Land Board in October 2000, right on schedule. It was our/your progress report on implementation of the SFLMP since June 1996, and we received good marks all around. The 40-page report (plus another 40 pages of Appendices) displayed the results of our substantial monitoring programs in Watershed, Silviculture, Biodiversity, Watershed and Road Management, Fisheries, Big Game, T&E and Sensitive Species, Grazing and Weed Management. The volumes of data to be summarized surprised even those who collected it, and the report's professionalism impressed the Land Board. The following are noteworthy items, both kudos and areas for improvement:

* Silviculture: From 1998-2000, selection and intermediate harvests were used more often than was forecast in the SFLMP, while even-aged regeneration harvests (clearcut, seed tree and shelterwood) were used less. We believe intermediate treatments are being favored because of financial considerations, public concerns over regeneration treatments, and site-specific factors. This is a trend to be watched as we continue to implement biodiversity objectives across our landscapes.

* Watershed and Road Management: Results of our internal BMP audits were consistent with the Statewide audits, maintaining our exemplary record. Timber sale inspection reports captured a few types of BMP "needs improvement" factors that were not found during BMP audits. This suggests that our inspection program is working to catch potential problems early and prevent them from showing up in post-sale audits.

* Fisheries: Population surveys east of the divide found that DNRC stream segments were supporting important westslope cutthroat trout populations in SW MT, emphasizing the need for good watershed management on these streams.

* Grazing Management: Nine of 23 licenses didn't meet riparian standards, and will need followup management and monitoring.

The FMB staff is currently accumulating a list of possible amendments to the Plan, which were presented in the report. These include updates on bull trout, westslope cutthroat trout and lynx management, old growth management, modifications to the financial analysis standards, and the development of grazing standards based on watershed sensitivity and beneficial uses. All amendments would be proposed at one time through a future MEPA process.

Meanwhile, updates to the Implementation guidance are ongoing. Updated guidance is being developed to comply with the federal listing of the lynx, and incorporates federal recommendations for management of key habitats. The Soils Monitoring guidance has been drafted and is undergoing revisions. Both sets of guidance should be out for general internal review later this year. The proposed revision of the biodiversity guidance is being submitted to the Land Board in May. We expect to commence temporary rule-making after receiving preliminary Board approval; see the lead article in this newsletter.

All holders of an SFLMP Implementation Binder should have received a copy of the Monitoring Report this winter. If you are new to the agency, or missed receiving a copy, contact Kathy O'Connor via email or telephone at 542-4302.

Happy Reading!

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